UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,481	03/12/2001	David de Graaf	2825.1023-001	1227

21005 7590 06/26/2003

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.
530 VIRGINIA ROAD
P.O. BOX 9133
CONCORD, MA 01742-9133

EXAMINER
EPPERSON, JON D

ART UNIT	PAPER NUMBER
1639	14

DATE MAILED: 06/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)	
Office Action Summary	09/804,481	GRAAF ET AL.	
File Copy	**Examiner**	**Art Unit**	
	Jon D Epperson	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 8-31* is/are pending in the application.

4a) Of the above claim(s) *13-31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 8-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Please note: The Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to **Group Art Unit 1639**.

Status of the Application

1. Receipt is acknowledged of a Response to a Restriction Requirement and Preliminary Amendment, which was dated on April 14, 2003 (Paper No. 13).

Priority Claims

2. The priority filing date of March 10, 2000 for application 60/188,304 is acknowledged.

Status of the Claims

3. Claims 1-31 are pending in the present application.

4. Furthermore, Applicants' response to the Restriction and/or Election of Species requirements in Paper No. 13 is acknowledged (Applicant elected Group I, claims 1-6 and 8-12). and claims 13-31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim (see below i.e., ***Response to Restriction and/or Election of Species***). Furthermore, Applicant cancelled claim 7 in Paper No. 13.

5. Please note: Applicant's *specifically* elected species (U1, Bae I, SEQ ID Nos:2 and 3) was searched and was not found in the prior art. Thus, the search was expanded to non-elected

species, which *were* found in the prior art, see rejections below. Also, see MPEP § 803.02 (emphasis added):

> On the other hand, should no prior art be found that anticipates or renders obvious the elected species, the search of the Markush-type claim will be extended. If prior art is then found that anticipates or renders obvious the Markush-type claim with respect to a nonelected species, the Markush-type claim shall be rejected and claims to the nonelected species held withdrawn from further consideration. ***The prior art search, however, will not be extended unnecessarily to cover all nonelected species.*** Should applicant, in response to this rejection of the Markush-type claim, overcome the rejection, as by amending the Markush-type claim to exclude the species anticipated or rendered obvious by the prior art, the amended Markush-type claim will be reexamined. The prior art search will be extended to the extent necessary to determine patentability of the Markush-type claim. In the event prior art is found during the reexamination that anticipates or renders obvious the amended Markush-type claim, the claim will be rejected and the action made final. Amendments submitted after the final rejection further restricting the scope of the claim may be denied entry.

6. In the interests of compact prosecution, claims drawn to non-elected species in some cases were not withdrawn because prior art was found in the process of search for the elected species (e.g., U6 snRNA in claim 4).

7. Therefore, claims 1-6 and 8-12 are examined on the merits in this action.

Response to Restriction and/or Election of Species

8. Applicant's election of Group I (claims 1-6 and 8-12) in Paper No. 13 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

9. Applicant's election of species in Paper No. 13 is also acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement (for Subgroups 1 and 3-5), the election of species has also been treated as an election without traverse (MPEP § 818.03(a)).

10. Applicant's election of species in Paper No. 13 with traverse is also acknowledged (for subgroup 2).

11. In view of Applicants' arguments, the species election requirement for subgroup 2 is hereby withdrawn.

12. As a result, the restriction requirement and/or election of species is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

13. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98 (b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on the form PTO-892, they have not been considered.

14. The references listed on applicant's PTO-1449 form have been considered by the Examiner. A copy of the form is attached to this Office Action.

Specification

15. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

16. Claims 1-6 and 8-12 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to adequate disclosure applicant is referred to the discussion in *University of California v. Eli Lilly and Co.* (U.S. Court of Appeals Federal Circuit (CAFC) 43 USPQ2d 1398 7/22/1997 Decided July 22, 1997; No. 96-1175) regarding disclosure. For adequate disclosure, like enablement, requires *representative examples*, which provide reasonable assurance to one skilled in the art that the compounds falling within the scope both possess the alleged utility and

additionally demonstrate that *applicant had possession of the full scope of the claimed invention.* See *In re Riat*_(CCPA 1964) 327 F2d 685, 140 USPQ 471; *In re Barr* (CCPA 1971) 444 F 2d 349, 151 USPQ 724 (for enablement) and University *of California v. Eli Lilly and Co* cited above (for disclosure).

Here, the number of possible nucleic acid sequences encompassed by the claims is very large. Applicants claim recombinant vectors of any origin (e.g., viral, plasmid, etc.) that can infect host cells of any type (e.g., human, bacterial, yeast, etc.) via any mechanism (e.g., replicate, integrate, etc.). However, Applicants provide only one example in the specification drawn to a a pSP-luc+ plasmid using 293T cells. Consequently, it is the Examiner's position that one example does not provide a representative number of samples that would indicate to one of ordinary skill in the art that applicant had possession of a nucleic acid vector molecule of the scope of the claimed invention.

Claims Rejections - 35 U.S.C. 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17. Claims 1-2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Tuschl et al (Tuschl, T.; Sharp, P. A.; Bartel, D. P. "Selection in vitro of novel ribozymes from a partially randomized U2 and U6 snRNA library" EMBO **1998**, 17, 9, 2637-2650).

For ***claim 1-2 and 4***, Tuschl et al (see entire document) discloses a recombinant vector encoding U2 and U6 snRNA with a 40 nucleotide insertion cassette contained between two insertions sites (see Tuschl et al, figures 1-2, see also Materials and Methods, Pool Construction, selection and amplification), which anticipates claim 1-2.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

20. Claims 1-6, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuschl et al (Tuschl, T.; Sharp, P. A.; Bartel, D. P. "Selection in vitro of novel ribozymes from a partially randomized U2 and U6 snRNA library" EMBO **1998**, 17, 9, 2637-2650) and the admission of

prior art in the Specification and Cohen et al (Cohen, J. B.; Snow, J. E.; Spencer, S. D.; Levinson, A. D. "Suppression of mammalian 5' splice-site defects by U1 small nuclear RNAs from a distance" PNAS 1994, 91, 10470-10474) (see IDS 3, reference AT).

For ***claims 1-2 and 4***, Tuschl et al teaches all the limitations stated in the 35 U.S.C. 102(b) rejection above (incorporated in its entirety herein by reference), which anticipates claims 1-2 and 4 and, consequently, also renders obvious claims 1-2 and 4.

For ***claim 5***, Tuschl et al teaches 40 base pairs, which is "about" 30.

For ***claim 6***, Tuschl et al teaches that the insertion cassette can be placed in the beginning (i.e., within the first 11 nucleotides) or at the end of the snRNA.

For ***claim 8***, Tuschl et al teaches up two 40 nucleotide cassettes, which reads on a "plurality" of nucleotides.

The prior art teachings of Tuschl et al differ from the claimed invention as follows:

For ***claim 3***, Tuschl et al is deficient in that it does not specifically teach the use of U1 snRNA. Tuschl only teaches the use of U2 and U6 snRNA (see Tuschl et al, abstract).

However, the admission in the specification and the Cohen et al references teaches the following limitations that are deficient in Tuschl et al:

For ***claim 3***, the admission in the specification combined with the reference that the specification refers to (i.e., the Tuschl et al reference) teach that a person of skill in the art would recognize the value of using all U snRNA including U1 snRNA (see

specification, Background of the Invention, page 1, last paragraph, "There has long been interest in utilizing the various splicing functions of individual U snRNA to inhibit or modify transcription, and, thereby, to suppress undesired expression products (Cohen, J. B., et al., 1994, PNAS 91:10470-10474) [which specifically cites the use of U1 snRNA, see entire document, especially abstract and Materials and Methods section]. Such suppression has enormous therapeutic potential").

It would have been obvious to one skilled in the art at the time the invention was make a recombinant vector encoding snRNA with an insertion cassette as taught by Tuschl et al with the U1 snRNA as taught by the admission in the specification and the Cohen et al reference because the admission in the specification teaches that any U snRNA would be a candidate for recombinant technology and specifically points to U1 snRNA by citing the Cohen et al reference (see specification, page 1, last paragraph; see also Cohen et al reference, entire document). Furthermore, one of ordinary skill in the art would have been motivated to use the U1 snRNA as taught by the admission in the specification and Cohen et al because according to the specification modification of such a snRNA would have "enormous therapeutic potential" and specifically recites a reference (i.e., the Cohen et al reference) that addresses the use of U1 snRNA. Furthermore, one of ordinary skill in the art would have reasonably expected to be successful because Cohen et al teaches that the U1 snRNA can be made into a vector and mutated.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon D Epperson whose telephone number is (703) 308-2423. The examiner can normally be reached Monday-Friday from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (703) 306-3217. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2439.

Jon D. Epperson, Ph.D.
June 17, 2003

BENNETT CELSA
PRIMARY EXAMINER